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(21)Application number : 2003-115683 (71)Applicant : CASIO COMPUT CO LTD

(22)Date of filing : 21.04.2003 (72)Inventor : ONO KATSUICHI

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(54) IMAGING APPARATUS, RECORDING CONTROL METHOD OF RECORDING AND CONTROLLING MOVING IMAGE FILE AND PROGRAM

(57)Abstract:

PROBLEM TO BE SOLVED: To reproduce moving image data continuing in time as one item of data, even when the moving image data are dividedly recorded in a plurality of recording media with different names.

SOLUTION: This apparatus is provided with a memory card 38 and a built-in memory 39 for recording moving image data obtained by photographing; and a control unit 32 for dividedly recording a series of moving image data continuing in time in the memory card 38 and the

built-in memory 39, adding the link information of a moving image file positioned temporally backward to image data positioned temporally forward among the plurality of divided moving image data and recording the moving image, and in reproduction, temporally continuously reproducing the moving image data which are dividedly recorded in the memory card 38 and the built-in memory 39 on the basis of the link information.

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CLAIMS

[Claim(s)]
[Claim 1]
In the image pick-up equipment in which animation photography is possible,

Two or more record means to record the animation data file obtained by photography,
The 1st record control means which divides and records a series of animation data files which continued in time on two or more above-mentioned record means,
The 2nd record control means which adds and records the related information of the animation file back located to the animation data file located in front in time among two or more animation data files divided by this 1st record control means
Image pick-up equipment characterized by providing.
[Claim 2]
Image pick-up equipment according to claim 1 characterized by reproducing in time the animation data file divided and recorded on two or more record means based on the related information recorded by the record control means of the above 2nd at the time of playback continuously.
[Claim 3]
Image pick-up equipment according to claim 1 characterized by outputting the animation data file divided and recorded on two or more record means to an external instrument as one animation data file which continued in time based on the related information recorded by the record control means of the above 2nd.
[Claim 4]
Image pick-up equipment according to claim 1 characterized by to provide further the 3rd record control means which re-records the animation data file divided and recorded as one animation data file which continued in time based on the related information recorded by the record control means of the above 2nd to what has an availability more than the capacity of a series of above-mentioned animation data files among two or more above-mentioned record means.
[Claim 5]
In the record control approach of the image pick-up equipment in which animation photography is possible,
The 1st record control process which divides and records a series of animation data files which continued in time on two or more record means,
The 2nd record control process which adds and records the related information of the animation file back located to the animation data file located in front in time among two or more animation data files divided at this 1st record control process
**** -- the record control approach of the animation file characterized by things the bottom.
[Claim 6]
In the program which the computer built in the image pick-up equipment in which animation

photography is possible executes,

The 1st record control step which divides and records a series of animation data files which continued in time on two or more record means,

The 2nd record control step which adds and records the related information of the animation file back located to the animation data file located in front in time among two or more animation data files divided at this 1st record control step

The program characterized by performing a computer.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]

This invention relates to the record control approach and program of the image pick-up equipment in which animation photography is possible, and an animation file.

[0002]

[Description of the Prior Art]

The digital camera which, and the photoed image is electronic-data-ized to the camera using a silver halide film, and can record it on it recently has spread widely. In this kind of digital camera, along with a raise in the pixel of the image sensor represented by CCD, the capacity of the image data file obtained by photography can become large, and the memory card which is a record medium can be equipped with the thing of nearby large capacity.

[0003]

In addition, it is possible to perform not only still picture photography but animation photography generally in this kind of digital camera. Since the limitation for every model needs to record the data file of the animation of a bigger capacity on image size or continuation exposure time as compared with the data file of a still picture of a certain thing Combine with enlarging capacity of the record medium with which it can equip, and it is also required that the number of the record media with which it can equip should be increased. From some models, what built in the memory other than a removable memory card fixed, the thing whose two-sheet wearing of the memory card from which a class differs was enabled are sold.

[0004]

Moreover, with the electronic camera, mainly if it has two kinds of record media of the MO disk equipment mainly for animation photography with the memory card for still picture photography and is judged with the remaining capacity of an MO disk being inadequate at the time of animation photography, the technique which it presupposed "Change a record medium to a memory card" is also considered. (For example, patent reference 1 reference.)

[0005]

[Patent reference 1]

JP,2001-136475,A

[0006]

[Problem(s) to be Solved by the Invention]

However, when changing the data file of one animation on the way, and making it record ranging over two record media is considered concretely, in order to prevent unnecessary duplication at the time of the handling of the data file in the device of the exteriors, such as a personal computer, it is necessary to add a file name which is different in each data file for every record medium.

[0007]

Therefore, the data file of the animation which continued in time recorded ranging over two record media will be dealt with as another thing from which a file name differs at the time of playback.

[0008]

This invention was made in view of the above actual condition, and the place made into the purpose is to offer the record control approach and program of the image pick-up equipment which can reproduce the data file of the animation recorded on the record medium of these plurality as one thing, and an animation file, when the data file of the animation which continues in time is recorded ranging over two or more record media.

[0009]

[Means for Solving the Problem]

Two or more record means to record the animation data file obtained by photography in the image pick-up equipment which invention according to claim 1 can animation photo, The 1st record control means which divides and records a series of animation data files which continued in time on two or more above-mentioned record means, It is characterized by providing the 2nd record control means which adds and records the related information of the animation file back located to the animation data file located in front in time among two or more animation data files divided by this 1st record control means.

[0010]

It can recognize that there are such a configuration, then other animation data files which followed the animation data file and time amount target by the added related information.

[0011]

Invention according to claim 2 is characterized by reproducing in time the animation data file divided and recorded on two or more record means based on the related information recorded by the record control means of the above 2nd at the time of playback continuously in invention of the claim 1 above-mentioned publication.

[0012]

In addition to an operation of invention of such a configuration, then the claim 1 above-mentioned publication, the animation data file which was divided and recorded on two or more record means according to the situation at the time of record and from which a file name differs, respectively can be automatically reproduced as one thing, in case it reproduces.

[0013]

Invention according to claim 3 is characterized by outputting the animation data file divided and recorded on two or more record means to an external instrument as one animation data file which continued in time based on the related information recorded by the record control means of the above 2nd in invention of the claim 1 above-mentioned publication.

[0014]

In case the animation data file which was divided and recorded on two or more record means according to the situation at the time of record and from which a file name differs, respectively is outputted to an external instrument, it can be made to output as one thing automatically in addition to an operation of invention of such a configuration, then the claim 1 above-mentioned publication.

[0015]

Invention according to claim 4 is set to invention of the claim 1 above-mentioned publication. The inside of two or more above-mentioned record means, As opposed to what has an availability more than the capacity of the animation data file of a top Norikazu ream It is characterized by providing further the 3rd record control means which re-records the animation data file divided and recorded as one animation data file which continued in time based on the related information recorded by the record control means of the above 2nd.

[0016]

an operation of invention of such a configuration, then the claim 1 above-mentioned publication -- in addition, since the animation file data divided into plurality was rerecorded as one thing

which continued in time anew when there was a record means to have a required availability especially, the animation data file over a long time can be obtained, without being limited to the selection situation of the record means at the time of the first record.

[0017]

In the record control approach of the image pick-up equipment which invention according to claim 5 can animation photo The 1st record control process which divides and records a series of animation data files which continued in time on two or more record means, It is characterized by having the 2nd record control process which adds and records the related information of the animation file back located to the animation data file located in front in time among two or more animation data files divided at this 1st record control process.

[0018]

It can recognize that there are such an approach, then other animation data files which followed the animation data file and time amount target by the added related information, and it becomes possible to utilize it at the time of playback and to deal with it as one animation data file.

[0019]

In the program which the computer built in the image pick-up equipment which invention according to claim 6 can animation photo executes The 1st record control step which divides and records a series of animation data files which continued in time on two or more record means, It is characterized by making a computer perform the 2nd record control step which adds and records the related information of the animation file back located to the animation data file located in front in time among two or more animation data files divided at this 1st record control step.

[0020]

It can recognize that there are the contents of such a program, then other animation data files which followed the animation data file and time amount target by the added related information, and it becomes possible to utilize it at the time of playback and to deal with it as one animation data file.

[0021]

[Embodiment of the Invention]

(Gestalt of the 1st operation)

Not only still picture photography but animation photography explains this invention with reference to a drawing below about the gestalt of the 1st operation at the time of applying to a possible digital camera.

[0022]

Drawing 1 is a perspective view in which the appearance configuration is shown and front drawing 1 (B) mainly shows [drawing 1 (A)] a configuration on the back.

[0023]

This digital camera 1 arranges a taking lens 2, the self-timer lamp 3, the optical finder aperture 4, the microphone section 5, the stroboscope light-emitting part 6, and the rubber grip 7 in the front face of the sheet metal-like body of an abbreviation rectangle, and allots the power-source key 8 and the shutter key 9 to a right end side on top (for a user).

[0024]

The rubber grip 7 is the band-like projection made of rubber arranged so that the right-hand middle finger, the third finger, and a digitus minimus could grasp this case certainly, when a user grasps a digital camera 1 from a case right lateral side with the right hand at the time of photography.

[0025]

The power-source key 8 is a key operated for every ON / OFF of a power source, and the shutter key 9 directs photography timing at the time of photography mode.

[0026]

Moreover, a mode switch (SW) 10, the loudspeaker section 11, a menu screen key 12, the cross-joint key 13, the set key 14, the optical finder 15, the stroboscope charge lamp 16, and a display 17 are allotted to the tooth back of a digital camera 1.

[0027]

A mode switch 10 is constituted by for example, the slide key switch, and switches the recording mode "R" and playback mode "P" which are a basic mode.

[0028]

A menu screen key 12 is operated in case various menu items etc. are made to choose.

[0029]

The cross-joint key 13 is operated, in case the key for the cursor advances to four-directions each direction is formed in one and the menu item currently displayed is moved.

[0030]

The set key 14 is arranged in the center position of the above-mentioned cross-joint key 13, and it is operated in order to set up the contents of a menu item chosen at the time.

[0031]

The stroboscope charge lamp 16 becomes with the LED lamp arranged by approaching the optical finder 15, and even if it is any in the case of seeing the case where the user of this digital camera 1 is looking into the optical finder 15, and the display 17, a user is made to check the

charge condition of a stroboscope etc. by looking.

[0032]

While a display 17 consists of electrochromatic display panels with a back light and performs the monitor display of a through image as an electronic finder at the time of a recording mode, it indicates the selected image etc. by playback at the time of a playback mode.

[0033]

In addition, although illustration is not carried out, for example, a USB (Universal Seriual Bus) connector etc. shall be prepared in the base of a digital camera 1 as a serial interface connector for connecting with the memory card slot for detaching and attaching the memory card used as a record medium, an external personal computer, etc.

[0034]

Subsequently, drawing 2 explains the electronic-circuitry configuration of the above-mentioned digital camera 1.

1 screen partial output of the photo-electric-conversion output corresponding to the light figure in which the scan drive was carried out by the timing generator 24 and the perpendicular driver 25, and CCD23 which is the image sensor arranged behind [that a focus location and a diaphragm location are moved by the drive of a motor (M) 21 / photography optical-axis] the lens optical system 22 which constitutes the above-mentioned taking lens 2 carried out image formation for every fixed period by them in this drawing in the recording mode which is a basic mode is carried out.

[0035]

After the gain adjustment of this photo-electric-conversion output is suitably carried out for every primary color component of RGB in the state of the signal of an analog value, sample hold is carried out in a sample hold circuit (S/H) 26, it is changed into digital data with A/D converter 27, color process processing which includes pixel interpolation processing and gamma amendment processing in the color process circuit 28 is performed, the luminance signal Y and color-difference signals Cb and Cr of digital value are generated, and it is outputted to the DMA (DirectMemory Access) controller 29.

[0036]

DMA controller 29 performs a DMA transfer to DRAM31 similarly once used for the buffer of the DMA controller 29 interior as buffer memory through writing and the DRAM interface (I/F) 30 using the composite synchronizing signal from the color process circuit 28, a memory write enable signal, and a clock signal in the luminance signal Y which the color process circuit 28 outputs, and color-difference signals Cb and Cr.

[0037]

ROM which memorized the program of operation performed by this CPU in which a control section 32 includes CPU, and the animation photography at the time of the recording mode mentioned later and the animation playback at the time of a playback mode fixed, And it is what is constituted by RAM used as work-piece memory, and manages the control action of this digital camera 1 whole. After DMA transfer ending to DRAM31 of the above-mentioned brightness and a color-difference signal, this brightness and color-difference signal are written in VRAM34 through read-out and the VRAM controller 33 through the DRAM interface 30 from DRAM31.

[0038]

The digital video encoder 35 generates a video signal through the VRAM controller 33 based on read-out and these data more nearly periodically than VRAM34, and outputs the above-mentioned brightness and a color-difference signal to the above-mentioned display 17.

[0039]

This display 17 functions as a monitor line (electronic finder) at the time of a recording mode, as mentioned above, is performing the display based on the video signal from the digital video encoder 35, and will display the image based on the image information incorporated from the VRAM controller 33 at that time on real time.

[0040]

Thus, a trigger signal will be generated if the above-mentioned shutter key 9 which constitutes the key input section 36 from timing to perform still picture photography is operated in the condition that the image in the time is shown to the display 17 by real time as a monitor image.

[0041]

After termination of the DMA transfer to the brightness for one screen incorporated from CCD23 according to this trigger signal at that time, and DRAM31 of a color-difference signal, a control section 32 stops the path to DRAM31 from CCD23 immediately, and changes in the condition of record-keeping.

[0042]

In the state of this record-keeping A control section 32 minds the DRAM interface 30 for the brightness and color-difference signal for one frame which are written in DRAM31. Read in the unit called a 8 pixels long and 8 pixels wide basic block for every component, which are Y, Cb, and Cr, and it writes in the JPEG (Joint Photograph coding Experts Group) circuit 37. A data compression is carried out by processing of the Huffman coding which is ADCT (Adaptive Discrete Cosine Transform: adaptation discrete cosine transform) and an entropy-code-modulation method in this JPEG circuit 37.

[0043]

And the obtained code data is written in either of the internal memories 39 built in read-out, the memory card 38 equipped free [attachment and detachment] as a record medium of this digital camera 1, or this digital camera 1 fixed from this JPEG circuit 37 as a data file of one image.

[0044]

And a control section 32 starts again the path from CCD23 to DRAM31 with write-in termination of the total compressed data to compression processing and the memory card 38, or internal memory 39 of the brightness for one frame, and a color-difference signal.

[0045]

Moreover, the speech processing section 40, the USB interface (I/F) 41, and the stroboscope mechanical component 42 are further connected to a control section 32.

[0046]

The speech processing section 40 is equipped with sound-source circuits, such as a PCM tone generator, and the sound signal inputted from the above-mentioned microphone section (Media Interface Connector) 5 is digitized at the time of audio sound recording. While a data compression is carried out according to predetermined data file format, for example, MP3 (MPEG-1 audio layer 3) specification, and a voice data file is created and sending out to a memory card 38 or an internal memory 39 At the time of audio playback, compression of the voice data file sent from the memory card 38 or the internal memory 39 is solved and analog-ized, and sound-reinforcement sound emission of the above-mentioned loudspeaker section (SP) 11 is driven and carried out.

[0047]

The USB interface 41 performs communications control in the case of sending and receiving an image data file and others among other external instruments, such as a personal computer by which cable connection is made through a USB connector.

[0048]

The stroboscope mechanical component 42 carries out the flash drive of the above-mentioned stroboscope light-emitting part 6 based on the control from a control section 32, after charging the mass capacitor for stroboscopes which is not illustrated at the time of still picture photography.

[0049]

In addition, the above-mentioned key input section 36 consists of the above-mentioned power-source key 8, a mode switch 10, a menu screen key 12, a cross-joint key 13, and set key 14 grade besides the shutter key 9 mentioned above, and the signal accompanying those key strokes

is sent out to the direct control section 32.

[0050]

However, it sets at the time of photography of the animation instead of a still picture. While the shutter key 9 of the key input section 36 is continuing being operated, record to the memory card 38 or internal memory 39 of a still picture data file which carried out the data compression of the still picture data mentioned above in the JPEG circuit 37 is performed continuously in time. When actuation of this shutter key 9 finishes or the predetermined time limit, for example, 30 seconds, passes, the still picture data file of these single strings is collectively reset up as a data file (AVI data file) of Motion-JPEG.

[0051]

At the time of the playback mode which is a basic mode, a control section 32 alternatively the image data currently recorded on the memory card 38 or the internal memory 39 Moreover, read-out, After elongating the image data compressed in the procedure which carried out the data compression at the time of a recording mode, and the completely reverse procedure and making the elongated image data hold to DRAM31 through the DRAM interface 30 in the JPEG circuit 37 VRAM34 is made to memorize the contents of maintenance of this DRAM31 through the VRAM controller 33, image data is read more nearly periodically than this VRAM34, a video signal is generated, and a playback output is carried out by the above-mentioned display 17.

[0052]

When the selected image data file is not a still picture but an animation, playback of each still picture data which constitute the selected animation data file is performed continuously in time and playback of all still picture data is ended, it indicates by playback only using the still picture data located in a head until reproductive directions are made by the degree.

[0053]

Next, actuation of the gestalt of the above-mentioned implementation is explained.

Here, in case record is continued even if it starts record of an animation data file previously using the memory card 38 which the user of this digital camera 1 chose, or an internal memory 39 and the remaining capacity of the memory by the side of [selected] it is lost when equipped with the memory card 38, memory shall be switched after checking that remaining capacity is in the memory of another side.

[0054]

In addition, a control section 32 performs fundamentally each processing shown below based on the program which has carried out fixed storage beforehand.

[0055]

Drawing 3 is repeating and judging whether the contents of processing about the animation photography at the time of the recording mode which is a basic mode being shown, and press actuation of the shutter key 9 of the key input section 36 having been made at the beginning, and stands by that initiation of animation photography is directed (step A01).

[0056]

And when press actuation of the shutter key 9 is carried out, this is judged by step A01, and the data of the still picture which turns into some animations are recorded, performing write-in address control of the memory of the direction chosen as the user among the memory card 38 and the internal memory 39 (step A02).

[0057]

Subsequently, if it judged whether more than capacity for an availability to write in a constant rate and the link information specifically mentioned later would remain in the memory currently used at the time (step A03) and remains in it The maximum time amount of the animation with which it was set up beforehand whether press actuation of the shutter key 9 is still continue being carried out, For example, animation photography is continued by returning to processing from the above-mentioned step A02 again, if it judges whether it has gone through 30 [a second] (steps A06 and A07) and does not correspond to them.

[0058]

moreover, when it is judged that the availability of the memory currently used in the above-mentioned step A03 in the middle of animation photography at the time has only a constant rate Next, it judges whether there is any availability which continues animation photography in the memory of another side which is not used at the time (step A04). Only when it is judged that it is, after performing address control processing for switching the memory to be used, it progresses to processing from (step A05) and the above-mentioned step A06.

[0059]

When it is judged that there is no availability which continues animation photography in the memory of another side which should carry out a deer, and which should be switched at the above-mentioned step A04, When it is judged that press actuation of the shutter key 9 was canceled at the above-mentioned step A06, and when it is judged that it went through the maximum time amount of the animation beforehand set up at the above-mentioned step A07, 30 [for example,], [a second] It judges whether the data of the animation which ended animation photography (step A08) and then ended the photography are covering two memory, a memory card 38 and an internal memory 39, (step A09).

[0060]

When it is judged that the data of the animation which ended the photography are covering two memory, a memory card 38 and an internal memory 39, here By considering the link information for reproducing the data of these animations in succession in the memory of the direction which recorded previously as a text data file, after carrying out an addition setup It stands by that set the file name according to individual as two memory, respectively, perform setting processing of an animation data file (step A10), finish record processing of a series of animation photography above, and return and the next animation photography are again directed to processing from the above-mentioned step A01.

[0061]

Where a memory card 38 is specified previously, animation photography is started, drawing 4 is in the middle of photography, and since the remaining capacity of a memory card 38 was lost, it illustrates the record condition of the animation data file at the time of switching use memory to an internal memory 39, and continuing animation photography.

[0062]

In this case, an addition setup of the text data file of a link information is carried out at a memory card 38 so that the "animation data file 1" whose name of a file is "a file name 1" may relate these "the animation data file 1" and the "animation data file 2" especially with the memory card 38 which recorded previously in time while the "animation data file 2" whose name of a file is "a file name 2" was recorded on the internal memory 39, respectively and it may carry out continuation playback according to the sequence at the time of photography.

[0063]

moreover, when it is judged that the data of the animation which ended photography at the above-mentioned step A09 are not covering two memory, a memory card 38 and an internal memory 39 either -- it stands by that perform setting processing of the animation data file (step A11), finish record processing of a series of animation photography above, and return and the next animation photography are again directed to processing from the above-mentioned step A01 only by memory while recording.

[0064]

Next, drawing 5 explains the contents of processing about the animation playback at the time of the playback mode which is a basic mode. In this drawing, when it stands by (step B01) and judges that it was chosen by that the animation data file reproduced first is chosen, it judges whether an addition setup of the text data file which serves as a link information next at the selected animation data file is carried out (step B02).

[0065]

When it is judged here that an addition setup of the text data file is carried out According to the contents of the link information, retrieval of a memory card 38 and an internal memory 39 is performed (step B03). After checking that the animation data file corresponding to both sides is recorded, respectively, (Step B04), Two animation data files are continuously reproduced in time in order of the right as a link information (step B05), and it returns to processing from the above-mentioned step B01 in order to stand by the next animation playback again, when the playback is ended.

[0066]

Moreover, a text data file is not set as the animation data file chosen at the above-mentioned step B02. When it is judged that other animation data files which carry out this selected animation data file previously, and continue in time cannot be found, and although an addition setup of the text data file is carried out, when it is judged that the animation data file corresponding to the link information does not look like [a memory card 38] the both sides of an internal memory 39 at step B04 by exchange of a memory card 38 or elimination of a data file Only the animation data file it was judged that it was chosen at the above-mentioned step B01 is reproduced independently (step B06), and it returns to processing from the above-mentioned step B01 in order to stand by the next animation playback again, when the playback is ended.

[0067]

Thus, the animation data file which has recognized whether there are other animation data files which continue in time considering the animation data file as the point, or there is nothing, divided into the memory card 38 and the internal memory 39 at the time of a playback mode by whether an addition setup of the text data file of a link information is carried out, and was recorded on the selected animation data file and from which a file name differs, respectively can be automatically reproduced as one thing in order of the right.

[0068]

Subsequently, this digital camera 1 is connected to an external instrument, for example, a personal computer, and the actuation in the case of incorporating the data file currently recorded on the memory card 38 and the internal memory 39 in a personal computer is explained.

[0069]

In this case, the software for data file incorporation corresponding to a digital camera 1 is beforehand installed in the personal computer which is an external instrument.

[0070]

If between the USB connectors of each personal computer PC is connected with a digital camera 1 by the USB cable CB1 by the condition of switching on both the power sources of a digital

camera 1 and a personal computer PC as shown in drawing 7 (A), incorporation actuation of a data file shall be started automatically.

[0071]

Drawing 6 shows the contents of processing which the control section 32 by the side of a digital camera 1 performs based on the program which has carried out fixed storage beforehand in the condition of having acted as powering on, at this time.

[0072]

It is always standing by that the USB cable CB1 is connected to a USB connector at the time of processing (step C01).

[0073]

When there is connection by the personal computer PC and the USB cable CB1, this is judged at step C01 by the detecting signal from the USB interface 41, and cross-reference of all the data files currently recorded on the memory card 38 and the internal memory 39 and all the data files already incorporated in the data folder predetermined [in a personal computer PC] is carried out (step C02).

[0074]

a ****** [that there are some which have not finished the incorporation to a personal computer PC yet by the data file currently moreover recorded on the memory card 38 and the internal memory 39] -- judging (step C03) -- being certain -- ** -- when it judges, one of them is chosen (step C04).

[0075]

Subsequently, it judges whether the selected data file is a data file of an animation (step C05), otherwise, the transfer output of the selected data file is unconditionally carried out to a personal computer PC independently (step C10).

[0076]

Under the present circumstances, after processing the file concerned currently collectively recorded on the memory card 38 or the internal memory 39 as what became transfer ending, return and processing about the non-transmitted data file which has not finished the incorporation to a personal computer PC yet are again performed from the above-mentioned step C03 to processing.

[0077]

Moreover, when it is judged that the data file chosen at the above-mentioned step C05 is a data file of an animation, it judges whether an addition setup of the text data file which serves as a link information next at the selected animation data file is carried out (step C06).

[0078]

When it is judged here that an addition setup of the text data file is carried out According to the contents of the link information, retrieval of a memory card 38 and an internal memory 39 is performed (step C07). After checking that the corresponding animation data file is recorded, two animation data files as what is one data file as (step C08) and a link information It resets up by the file name of the animation data file of the direction recorded previously, and a transfer output is carried out to a personal computer PC (step C09).

[0079]

After processing two corresponding animation data files currently collectively recorded on the memory card 38 or the internal memory 39 also in this case as what became transfer ending, return and processing about the non-transmitted data file which has not finished the incorporation to a personal computer PC yet are again performed from the above-mentioned step C03 to processing.

[0080]

Furthermore, a text data file is not set as the animation data file chosen at the above-mentioned step C06. When it is judged that other animation data files which carry out this selected animation data file previously, and continue in time cannot be found, and although an addition setup of the text data file is carried out, when it is judged that the animation data file corresponding to the link information does not look like [a memory card 38] the both sides of an internal memory 39 at step C08 by exchange of a memory card 38 or elimination of a data file The transfer output of the animation data file which is not transmitted [which was chosen at the above-mentioned step C04] is independently carried out to a personal computer PC (step C10), and it returns to processing from the above-mentioned step C03 again after that.

[0081]

And when it judges that there is already nothing that has not finished the incorporation to a personal computer PC yet by the data file currently recorded on the memory card 38 and the internal memory 39 at the above-mentioned step C03 All processings to connection with the personal computer PC using the USB cable CB1 are ended, and it returns to processing from step C01 in order to stand by that it will be in a connection condition at (step C11) and a degree after performing cutting processing which severs a connection condition.

[0082]

Thus, in case two animation data files which were divided and recorded on the memory card 38 and the internal memory 39 according to the situation at the time of record and from which a file name differs are outputted to a personal computer PC, they are made to output as one thing

automatically.

[0083]

The amount of data being large and continuing in time originally by this, especially since it consists of two or more still picture data, automatically, in a personal computer PC, the animation data file which must be divided and recorded on two memory can also be incorporated as one data file, and handling [data / future] of it becomes easy.

[0084]

In addition, although above-mentioned drawing 6 and drawing 7 (A) explained the case where a personal computer PC was connected with a digital camera 1 by the USB cable CB1 As shown in drawing 7 (B), also when two sets of digital cameras 1 and 1 are connected with the USB cable CB2 For example, it is good also as what incorporates the data file which is recording the digital camera 1 with which the availability of the memory card 38 with which it has equipped becomes the digital camera 1 by the side of the host a device side by making the larger one into a host side.

[0085]

Moreover, you may correspond to wireless LAN interfaces twisted to the cable connection based on serial interface specification like the USB cable 1 and CB 2 shown in above-mentioned drawing 7 (A) and (B) as a means to connect two or more devices, such as not only a thing but Bluetooth (trademark).

[0086]

(Gestalt of the 2nd operation)

Not only still picture photography but animation photography explains this invention with reference to a drawing below about the gestalt of the 2nd operation at the time of applying to a possible digital camera.

[0087]

In addition, as for the appearance configuration, above-mentioned drawing 1 and an electronic-circuitry configuration add the same sign to the same part as same thing fundamentally with above-mentioned drawing 2 , respectively, and the illustration and explanation are omitted.

[0088]

Next, actuation of the gestalt of the above-mentioned implementation is explained.

[0089]

Here, in case record is continued even if it starts record of an animation data file previously using the memory card 38 which the user of this digital camera 1 chose, or an internal memory 39 and the remaining capacity of the memory by the side of [selected] it is lost when equipped

with the memory card 38, memory shall be switched after checking that remaining capacity is in the memory of another side.

[0090]

In addition, a control section 32 performs fundamentally each processing shown below based on the program which has carried out fixed storage beforehand.

[0091]

Drawing 8 is repeating and judging whether the contents of processing about the animation photography at the time of the recording mode which is a basic mode being shown, and press actuation of the shutter key 9 of the key input section 36 having been made at the beginning, and stands by that initiation of animation photography is directed (step D01).

[0092]

And when press actuation of the shutter key 9 is carried out, this is judged by step D01, and the data of the still picture which turns into some animations are recorded, performing write-in address control of the memory of the direction chosen as the user among the memory card 38 and the internal memory 39 (step D02).

[0093]

Subsequently, if it judged whether more than capacity for an availability to write in a constant rate and the link information specifically mentioned later would remain in the memory currently used at the time (step D03) and remains in it The maximum time amount of the animation with which it was set up beforehand whether press actuation of the shutter key 9 is still continue being carried out, For example, animation photography is continued by returning to processing from the above-mentioned step D02 again, if it judges whether it has gone through 30 [a second] (steps D06 and D07) and does not correspond to them.

[0094]

moreover, when it is judged that the availability of the memory currently used in the above-mentioned step D03 in the middle of animation photography at the time has only a constant rate Next, it judges whether there is any availability which continues animation photography in the memory of another side which is not used at the time (step D04). Only when it is judged that it is, after performing address control processing for switching the memory to be used, it progresses to processing from (step D05) and the above-mentioned step D06.

[0095]

When it is judged that there is no availability which continues animation photography in the memory of another side which should carry out a deer, and which should be switched at the above-mentioned step D04, When it is judged that press actuation of the shutter key 9 was

canceled at the above-mentioned step D06, and when it is judged that it went through the maximum time amount of the animation beforehand set up at the above-mentioned step D07, 30 [for example,], [a second] It judges whether the data of the animation which ended animation photography (step D08) and then ended the photography are covering two memory, a memory card 38 and an internal memory 39, (step D09).

[0096]

When it is judged that the data of the animation which ended the photography are covering two memory, a memory card 38 and an internal memory 39, here Next, the amount of the video data currently recorded on the near memory previously recorded among the video datas which divided by this animation photography and were recorded, It judges whether it is possible to rerecord on (step D10) and the memory which recorded later the video data recorded previously anew, after checking the availability of the near memory recorded later (step D11).

[0097]

The amount of the video data currently recorded on the near memory recorded previously here When it is judged that it is below the availability of the near memory recorded later, and it is possible to rerecord on the memory of the side which recorded two video datas later Gather two video datas which divided anew and were recorded in the near memory recorded later, collect as one animation data file, and it rerecords. It stands by that finish record processing of animation photography of a single string in (step D12) and the above after eliminating the video data of the near memory recorded previously after that, and return and the next animation photography are again directed to processing from the above-mentioned step D01.

[0098]

Moreover, the amount of the video data currently recorded on the near memory previously recorded at the above-mentioned step D11 When it is judged that it is larger than the availability of the near memory recorded later, and it is impossible to rerecord on the memory of the side which recorded two video datas later As above-mentioned drawing 4 also showed, after considering the link information for reproducing the data of these animations in succession in the memory of the side which recorded previously as it is as the text data file and carrying out an addition setup It stands by that set the file name according to individual as two memory, respectively, perform setting processing of an animation data file (step D13), finish record processing of a series of animation photography above, and return and the next animation photography are again directed to processing from the above-mentioned step D01.

[0099]

furthermore, when it is judged that the data of the animation which ended photography at the

above-mentioned step D09 are not covering two memory, a memory card 38 and an internal memory 39 either -- it stands by that perform setting processing of the animation data file (step D14), finish record processing of a series of animation photography above, and return and the next animation photography are again directed to processing from the above-mentioned step D01 only by memory while recording.

[0100]

Thus, even if the availability of the memory of the side chosen as the beginning at the time of record is not enough and it is the case where a series of animation data files are divided and recorded ranging over two memory Enough, in a certain case, the availability of the memory of the side which had not been chosen as the beginning at the time of record shall gather two video datas which divided as processing after record and were recorded, and shall rerecord on it automatically as one animation data file.

[0101]

Possibility of dividing and recording a series of animation data files which continued in time by this, without being limited to the selection situation of the memory of the time of the time of record by different file name is reduced, and treatment of the big animation data file of the amount of data can be made easier.

[0102]

In addition, although the gestalt of the above 1st and the 2nd implementation explained the case where each recorded an animation data file on two memory of the internal memory 39 prepared in a removable memory card 38 and a removable digital camera 1 fixed to the digital camera 1 It adds to an internal memory. For example, a thing that it can equip with the memory card of two sheets, and recordable on a total of three memory (semi-conductor), Or even if it has three or more record media containing not only semiconductor memory but a hard disk drive unit, MO disk equipment, etc., it can respond by the same view.

[0103]

In that case, to each animation data file divided and recorded for every record medium, the link information of other animation data files is put in block to the animation data file located in a head in time, and an addition setup is not carried out. By carrying out an addition setup, respectively, only the link information of the animation data file immediately after continuing in time Even if a part of a series of animation data files have been spoiled by exchange of a record medium, elimination of a file, etc., the remaining animation data files can be reproduced or outputted continuously.

[0104]

This For example, when the animation data file of "1" - "3" which continued in time divided and is recorded, Carry out an addition setup of the link information of the animation data file of "2" at the animation data file of "1", and the link information of the animation data file of "3" by carrying out an addition setup to the animation data file of "2" Even if the animation data file of "1" has been lost after that, the animation data file of "2" and "3" can be reproduced or outputted continuously.

[0105]

Moreover, although the case where each gestalt of the above 1st and the 2nd implementation applies this invention to a digital camera is explained, as for this invention, a portable telephone and PDA (Personal Digital Assistant: Personal Digital Assistant for individuals), not only this but electronic equipment with an animation photography function which is equipped with two or more record media, for example, with a camera, also become applicable easily.

[0106]

In addition, let this invention be what has possible deforming variously and carrying out within limits which do not deviate not only from the gestalt of the above-mentioned implementation but from its summary.

[0107]

Furthermore, invention of various phases is included in the gestalt of the above-mentioned implementation, and various invention may be extracted by the proper combination in two or more requirements for a configuration indicated. For example, even if some requirements for a configuration are deleted from all the requirements for a configuration shown in the gestalt of operation, at least one of the technical problems stated in the column of Object of the Invention is solvable, and when at least one of the effectiveness stated in the column of an effect of the invention is obtained, the configuration from which this requirement for a configuration was deleted may be extracted as invention.

[0108]

[Effect of the Invention]

According to invention according to claim 1, it can recognize that there are other animation data files which followed the animation data file and time amount target by the added related information.

[0109]

According to invention according to claim 2, in addition to the effect of the invention of the claim 1 above-mentioned publication, the animation data file which was divided and recorded on two or more record means according to the situation at the time of record and from which a file name

differs, respectively can be automatically reproduced as one thing, in case it reproduces.

[0110]

In case the animation data file which was divided and recorded on two or more record means according to the situation at the time of record and from which a file name differs, respectively is outputted to an external instrument, it can be made to output [according to invention according to claim 3] as one thing automatically in addition to the effect of the invention of the claim 1 above-mentioned publication.

[0111]

according to invention according to claim 4 -- the effect of the invention of the claim 1 above-mentioned publication -- in addition, since the animation file data divided into plurality was rerecorded as one thing which continued in time anew when there was a record means to have a required availability especially, the animation data file over a long time can be obtained, without being limited to the selection situation of the record means at the time of the first record.

[0112]

According to invention according to claim 5, it can recognize that there are other animation data files which followed the animation data file and time amount target by the added related information, and it becomes possible to utilize it at the time of playback and to deal with it as one animation data file.

[0113]

According to invention according to claim 6, it can recognize that there are other animation data files which followed the animation data file and time amount target by the added related information, and it becomes possible to utilize it at the time of playback and to deal with it as one animation data file.

[Brief Description of the Drawings]

[Drawing 1] The perspective view showing the appearance configuration of the digital camera concerning the gestalt of operation of the 1st of this invention.

[Drawing 2] The block diagram showing the configuration of the electronic camera concerning the gestalt of this operation.

[Drawing 3] The flow chart which shows the contents of processing of the animation photography concerning the gestalt of this operation.

[Drawing 4] Drawing which illustrates the animation data file recorded on memory by the animation photography concerning the gestalt of this operation.

[Drawing 5] The flow chart which shows the contents of processing of the animation playback concerning the gestalt of this operation.

[Drawing 6] The flow chart which shows the contents of processing at the time of connection with the external instrument concerning the gestalt of this operation.

[Drawing 7] Drawing showing a connection configuration with the external instrument concerning the gestalt of this operation.

[Drawing 8] The flow chart which shows the contents of processing of the animation photography concerning the gestalt of operation of the 2nd of this invention.

[Description of Notations]

1 [-- Optical finder aperture,] -- A digital camera, 2 -- A taking lens, 3 -- A self-timer lamp, 4 5 -- The microphone section (Media Interface Connector), 6 -- A stroboscope light-emitting part, 7 -- Rubber grip, 8 -- A power-source key, 9 -- A shutter key, 10 -- Mode switch (SW), 11 -- The loudspeaker section (SP), 12 -- A menu screen key, 13 -- Cross-joint key, 14 -- A set key, 15 -- An optical finder, 16 -- Stroboscope charge lamp, 17 [-- CCD,] -- A display, 21 -- A motor (M), 22 -- Lens optical system, 23 24 -- A timing generator (TG), 25 -- A perpendicular driver, 26 -- Sample hold circuit (S/H), 27 -- An A/D converter, 28 -- A color process circuit, 29 -- DMA controller, 30 -- A DRAM interface (I/F), 31 -- DRAM, 32 -- Control section, 33 -- A VRAM controller, 34 -- VRAM, 35 -- Digital video encoder, 36 [-- An internal memory, 40 / -- The speech processing section, 41 / -- A USB interface (I/F), 42 / -- A stroboscope mechanical component, CB1, CB2 / -- A USB cable, PC / -- Personal computer.] -- The key input section, 37 -- A JPEG circuit, 38 -- A memory card, 39